

Mr. Rob Baker  
International Fuel Systems  
980 Hurricane Road  
Franklin, IN 46131

Dear Mr. Baker:

Re: Exempt Construction and Operation Status,  
081-12761-00041

The application from International Fuel Systems, Inc., received on October 3, 2000, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following marine engine production facility, to be located at 980 Hurricane Road, Indiana, is classified as exempt from air pollution permit requirements:

- (a) One (1) controlled pyrolysis cleaning furnace, identified as bake off oven # 1, with a maximum rated capacity of 0.95 million (MM) British thermal units (Btu) per hour, utilizing one (1) direct flame afterburner, as an integral part of the furnace, rated at 0.75 MMBtu per hour as control and exhausting at stack E38.
- (b) Nineteen (19) natural gas fired heaters, each with a maximum rated capacity of 0.13 million (MM) British thermal units (Btu) per hour, using liquid propane gas as a backup fuel.
- (c) Four (4) natural gas-fired parts washers, each with a maximum rated capacity of 0.1475 million (MM) British thermal units (Btu) per hour, and exhausting to stacks identified as E9, E17, E28 and E30, respectively.
- (d) Welding operation; one (1) metal inert gas (MIG) station, with a maximum wire consumption rate of 0.01042 pounds of wire per hour (lb wire/hr), one (1) tungsten inert gas (TIG) station, with a maximum wire consumption rate of 0.03125 lb wire/hr, and one (1) oxyacetylene welding station, with a maximum wire consumption rate of 0.00087 lb wire/hr.

The following conditions shall be applicable:

- (1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:
  - (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
  - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

- (2) The particulate matter (PM) from the one (1) metal inert gas (MIG) welding station, one (1) tungsten inert gas (TIG) welding station, and one (1) oxyacetylene welding station with plasma arc cutting (PAC) shall be limited to 0.551 pounds per hour because the combined process weight rate is less than 100 pounds per hour.

This exemption supersedes previous air approval (CP 081-5084-00048) issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

AY/EVP

cc: File -Johnson County  
Johnson County Health Department  
Air Compliance - Marc Goldman  
Permit Tracking - Janet Mobley  
Air Programs Section- Michelle Boner

## Indiana Department of Environmental Management Office of Air Quality

### Technical Support Document (TSD) for an Exemption

#### Source Background and Description

**Source Name:** International Fuel Systems  
**Source Location:** 980 Hurricane Road, Franklin, IN 46131  
**County:** Johnson  
**SIC Code:** 3519  
**Operation Permit No.:** 081-12761-00041  
**Permit Reviewer:** Adeel Yousuf / EVP

The Office of Air Quality (OAQ) has reviewed an application from International Fuel Systems relating to the construction and operation of a bake off oven at the existing marine engine production facility.

#### History

On December 9, 1997, a construction permit, CP 081-5398-00041 was issued to Marine Corporation of America, Inc. On October 3, 2000, International Fuel systems as a new owner of Marine Corporation of American, Inc., submitted an application to OAQ requesting an addition of bake off oven, and deletion of spray paint booth and three (3) dynamometers from the permit.

#### Permitted Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) Nineteen (19) natural gas fired heaters, each with a maximum rated capacity of 0.13 million (MM) British thermal units (Btu) per hour, using liquid propane gas as a backup fuel.
- (b) Four (4) natural gas-fired parts washers, each with a maximum rated capacity of 0.1475 million (MM) British thermal units (Btu) per hour, and exhausting to stacks identified as E9, E17, E28 and E30, respectively.
- (c) Welding operation; one (1) metal inert gas (MIG) station, with a maximum wire consumption rate of 0.01042 pounds of wire per hour (lb wire/hr), one (1) tungsten inert gas (TIG) station, with a maximum wire consumption rate of 0.03125 lb wire/hr, and one (1) oxyacetylene welding station, with a maximum wire consumption rate of 0.00087 lb wire/hr.
- (d) One (1) spray paint booth, known as E3, for coating metal marine engines equipped with air atomization spray guns and dry filters for overspray control, capacity: 4.5 engines per hour.
- (e) Three (3) dynamometers, known as E1, E2 and E29, for testing diesel marine engines with a horsepower range of 260 to 330.

*Note: Emission units (d) and (e) are no longer in operation at the source, thus making this source an exempt source.*

## Unpermitted Emission Units and Pollution Control Equipment

The source also consists of the following unpermitted facilities/units:

- (a) One (1) controlled pyrolysis cleaning furnace, identified as bake off oven # 1, with a maximum rated capacity of 0.95 million (MM) British thermal units (Btu) per hour, utilizing one (1) direct flame afterburner as an integral part of the furnace, rated at 0.75 MMBtu per hour as control and exhausting at stack E38.

## Existing Approvals

The source has been operating under previous approvals including, but not limited to, the following:

- (a) Construction Permit CP 081-5084-00048, issued on April 26, 1996; and

All conditions from previous approvals were incorporated into this permit except the following:

- (a) CP 081-5084-00048, issued on April 26, 1996.

Condition 9 (a) : The dry filters for particulate matter overspray control shall be in operation at all times when the spray paint booth is in operation.

Condition 9(c): Daily inspections shall be performed to verify the placement, integrity and particulate loading of the dry filters.

Reason not incorporated: Conditions 9(a) and (c) are not incorporated because one (1) spray paint booth, identified as E3 is being removed from the facility.

Condition 9(b) has been revised to be applicable only to the welding and the plasma cutting operations: Welding and the plasma cutting operations shall each comply with 326 IAC 6-3-2(c) using the following equation:

P is equal to or less than 60,000 pounds per hour (30 tons per hour)

$$E = 4.10P^{0.67} \quad \text{where: } E = \text{rate emission in pounds per hour} \\ P = \text{process weight in tons per hour}$$

Reason: Conditions 9(b) is no longer applicable to the spray paint booth because one (1) spray paint booth, identified as E3 is being removed from the facility.

Additionally, three (3) dynamometers, identified as E1, E2, E29, are no longer in operation at the facility.

Based on the re-calculated emissions, and pursuant to 326 IAC 2-1.1-3, the source is determined to be exempt of the permitting requirements. This exemption shall supercede the existing CP 081-5398-00041.

## Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
E9	One (1) parts washer	14.7	1.53	NA	180
E17	One (1) parts washer	14.7	4.53	NA	180
E28	One (1) parts washer	14.7	1.50	NA	180
E38	Bake off Oven # 1	14.0	1.16	1100-1600	1400-1600

### Enforcement Issue

- (a) IDEM is aware that equipment has been constructed and operated prior to receipt of the proper permit. The subject equipment is listed in this Technical Support Document under the condition entitled *Unpermitted Emission Units and Pollution Control Equipment*.
- (b) This equipment is not subject to enforcement action because the potential to emit of all regulated air pollutants is of exemption level.

### Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on October 3, 2000.

### Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, pages 1 through 9.)

### Potential To Emit of the Entire Source

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	0.93
PM-10	0.93
SO <sub>2</sub>	0.12
VOC	3.43
CO	0.83
NO <sub>x</sub>	1.99

HAP's	Potential To Emit (tons/year)
Hexane	0.202
Manganese	1.19E-4
Nickel	2.81E-5
Chromium	1.87E-5
Formaldehyde	1.00E-3
Toluene	4.55E-5
Benzene	2.81E-5
TOTAL	0.21

- (a) The potential to emit of all the regulated pollutants after the modification to the source is lower than the registration applicability thresholds stated in 326 IAC 2-5.1-2. Therefore, pursuant to 326 IAC 2-1.1-3, this source is an exempt source.
- (a) Fugitive Emissions

Since this type of operation is not one of the twenty-eight (28) listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

### Actual Emissions

No previous emission data has been received from the source.

### County Attainment Status

The source is located in Johnson County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Johnson County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO<sub>x</sub> emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Johnson County has been classified as attainment or unclassifiable for PM-10, SO<sub>2</sub>, Ozone, CO and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions  
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2, 40 CFR 52.21, or 326 IAC 2-3 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are not counted toward determination of PSD and Emission Offset applicability.

### Part 70 Permit Determination

#### 326 IAC 2-7 (Part 70 Permit Program)

The total emissions indicated in this Exemption 081-12761-00041, is still not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This status is based on all the air approvals issued to the source. This status has been verified by the OAQ inspector assigned to the source.

### Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this source.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 61) applicable to this source.

#### **State Rule Applicability - Entire Source**

##### **326 IAC 2-4.1-1 (New Source Toxics Control)**

This source is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control) because the source has PTE of any HAP less than 10 tons per year and PTE of any combination of HAPs less than 25 tons per year. Therefore, 326 IAC 2-4.1-1 does not apply.

##### **326 IAC 2-6 (Emission Reporting)**

This source is located in Dubois County and the potential to emit all criteria pollutants is less than twenty-five (25) tons per year. Therefore, 326 IAC 2-6 does not apply.

##### **326 IAC 5-1 (Opacity Limitations)**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### **State Rule Applicability - Individual Facilities**

##### **326 IAC 6-3-2 (Process Operations)**

The particulate matter (PM) from the one (1) metal inert gas (MIG) welding station, one (1) tungsten inert gas (TIG) welding station, and one (1) oxyacetylene welding station with plasma arc cutting (PAC) shall be limited to 0.551 pounds per hour because the combined process weight rate is less than 100 pounds per hour.

#### **Conclusion**

The operation of this marine engine production facility shall be subject to the conditions of the attached proposed **Exemption 081-12761-00041**.

## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <0.3

#### Residential Furnaces

Company Name: International Fuel Systems

Address City IN Zip: 980 Hurricane Road, Franklin, IN 46131

CP: 081-12761

Pit ID: 081-00041

Reviewer: Adeel Yousuf / EVP

Date: November 8, 2000

Nineteen (19) unit heaters

Heat Input Capacity

MMBtu/hr

2.47

Potential Throughput

MMCF/yr

21.6

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	11.2	11.2	0.6	94.0	7.3	40.0
Potential Emission in tons/yr	0.121	0.121	0.006	**see below	0.079	0.433

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.



**Appendix A: Emissions Calculations  
Natural Gas Combustion Only**

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**MM BTU/HR <100**

**Small Industrial Boiler**

**HAPs Emissions**

**Company Name:** International Fuel Systems

**Address City IN Zip:** 980 Hurricane Road, Franklin, IN 46131

**CP:** 081-12761

**Plt ID:** 081-00041

**Reviewer:** Adeel Yousuf / EVP

**Date:** November 8, 2000

**HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	2.272E-05	1.298E-05	8.114E-04	1.947E-02	3.678E-05

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	5.409E-06	1.190E-05	1.515E-05	4.111E-06	2.272E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emission Calculations**  
**LPG-Propane - Commercial Boilers**  
**(Heat input capacity: > 0.3 < 10.0 MMBtu/hr )**

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**Company Name:** International Fuel Systems  
**Address City IN Zip:** 980 Hurricane Road, Franklin, IN 46131  
**CP:** 081-12761  
**Pit ID:** 081-00041  
**Reviewer:** Adeel Yousuf / EVP  
**Date:** November 8, 2000

Heat Input Capacity                      Potential Throughput                      SO<sub>2</sub> Emission factor = 0.10 x S  
MMBtu/hr                                      kgals/year                      S = Sulfur Content =                      0.001 grains/100ft<sup>3</sup>

2.470

236.47

Emission Factor in lb/kgal	Pollutant					
	PM*	PM10*	SO <sub>2</sub> (0.10S)	NO <sub>x</sub>	VOC **TOC value	CO
Potential Emission in tons/yr	0.047	0.047	0.00001	1.66	0.059	0.225

\*PM emission factor is filterable PM only. PM10 emission factor is assumed to be the same as PM based on a footnote in Table 1.5-1, therefore PM10 is filterable only as well.

\*\*The VOC value given is TOC. The methane emission factor is 0.2 lb/kgal.

### Methodology

1 gallon of LPG has a heating value of 94,000 Btu

1 gallon of propane has a heating value of 91,500 Btu (use this to convert emission factors to an energy basis for propane)

(Source - AP-42 (Supplement B 10/96) page 1.5-1)

Potential Throughput (kgals/year) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1kgal per 1000 gallon x 1 gal per 0.0915 MMBtu

Emission Factors are from AP42 (Supplement B 10/96), Table 1.5-1 (SCC #1-02-010-02)

Emission (tons/yr) = Throughput (kgals/yr) x Emission Factor (lb/kgal) / 2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

**Appendix A: Emissions Calculations****Natural Gas Combustion Only****MM BTU/HR <0.3****Residential Furnaces****Company Name:** International Fuel Systems**Address City IN Zip:** 980 Hurricane Road, Franklin, IN 46131**CP:** 081-12761**Pit ID:** 081-00041**Reviewer:** Adeel Yousuf / EVP**Date:** November 8, 2000

Four (4) parts washers

Heat Input Capacity

MMBtu/hr

0.59

Potential Throughput

MMCF/yr

5.17

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	11.2	11.2	0.6	94.0	7.3	40.0
				**see below		
Potential Emission in tons/yr	0.029	0.029	0.002	0.243	0.019	0.103

\*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

**Appendix A: Emissions Calculations  
Natural Gas Combustion Only**

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**MM BTU/HR <0.3**

**Residential Furnaces**

**HAPs Emissions**

**Company Name:** International Fuel Systems

**Address City IN Zip:** 980 Hurricane Road, Franklin, IN 46131

**CP:** 081-12761

**Plt ID:** 081-00041

**Reviewer:** Adeel Yousuf / EVP

**Date:** November 8, 2000

**HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	5.427E-06	3.101E-06	1.938E-04	4.652E-03	8.786E-06

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	1.292E-06	2.843E-06	3.618E-06	9.820E-07	5.427E-06

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.  
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

**Appendix A: Emission Calculations**  
**Natural Gas Combustion**  
**MM Btu/hr 0.3 - < 100**

**Company Name:** International Fuel Systems  
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**Plt ID:** 081-00041  
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Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

0.95

8.3

Heat Input Capacity includes:

One (1) controlled pyrolysis cleaning furnace with an afterburner, with a combined rated heat input of 0.95 MMBtu per hour

	Pollutant					
	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.03	0.03	0.00	0.42	0.02	0.35

Methodology:

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 50, Flue gas recirculation = 32

All PM is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors may be used to estimate PM10, PM2.5, and PM1 emissions.

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1 and 1.4-2, SCC #1-01-006-02, #1-02-006-02, #1-03-006-02, #1-03-006-03

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix A: Welding and Thermal Cutting

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Company Name: International Fuel Systems  
 Address City IN Zip: 980 Hurricane Road, Franklin, IN 46131  
 Permit No./Plt ID: 081-12761-00041  
 Reviewer: Adeel Yousuf / EVP  
 Date: November 8, 2000

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)		EMISSION FACTORS * (lb pollutant / lb electrode)				EMISSIONS (lb/hr)				TOTAL HAPS (lb/hr)
				PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
WELDING												
Metal Inert Gas (MIG)(ER5154)	1	0.01042		0.0055	0.0005			5.73E-05	5.21E-06	0.00E+00	0.00E+00	5.210E-06
Tungsten Inert Gas (TIG)(carbon steel)	1	0.03125		0.0055	0.0005			1.72E-04	1.56E-05			1.563E-05
Oxyacetylene(carbon steel)	1	0.00087		0.0055	0.0005			4.79E-06	4.35E-07			4.350E-07
FLAME CUTTING	Number of Stations	Max. Metal Thickness Cut (in.)	Max. Metal Cutting Rate (in./minute)	EMISSION FACTORS (lb pollutant/1,000 inches cut, 1" thick)				EMISSIONS (lbs/hr)				TOTAL HAPS (lb/hr)
				PM = PM10	Mn	Ni	Cr	PM = PM10	Mn	Ni	Cr	
Plasma Arc Cutting (PAC)	1	1	1	0.1622	0.0005	0.0001	0.0003	9.73E-03	4.87E-06	4.87E-10	1.46E-13	4.87E-06
EMISSION TOTALS								PM = PM10	Mn	Ni	Cr	Total HAPs
Potential Emissions lbs/hr								9.97E-03	2.61E-05	4.87E-10	2.92E-13	2.61E-05
Potential Emissions lbs/day								2.39E-01	6.27E-04	1.17E-08	7.01E-12	6.27E-04
Potential Emissions tons/year								4.37E-02	1.14E-04	2.13E-09	1.28E-12	1.14E-04

METHODOLGY

\*Emission Factors are default values for carbon steel unless a specific electrode type is noted in the Process column. Consult AP-42 or other reference for different electrode types.

Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)

Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 1" thick)

Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day

Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/day x 1 ton/2,000 lbs.

Plasma cutting emission factors are from the American Welding Society study published in Sweden (March 1994).

Welding and other flame cutting emission factors are from an internal training session document.

See AP-42, Chapter 12.19 for additional emission factors for welding.

**Appendix A: Emission Calculations**  
**Industrial/Commercial Incinerator with Single Chamber**

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**Company Name:** International Fuel Systems  
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**CP:** 081-12761  
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<p align="center">THROUGHPUT lbs/hr 20</p>
--

THROUGHPUT  
ton/yr  
87.6

Bake-off Oven # 1

Emission Factor in lb/ton	POLLUTANT				
	PM	SO2	CO	VOC	NOX
	15.0	2.5	20.0	15.0	2.0
Potential Emissions in ton/yr	0.657	0.110	0.876	0.657	0.088

**Methodology**

Emission factors are from AP 42 (5th Edition 1/95) Table 2.1-12, Uncontrolled emission factors for industrial/commercial refuse combustors, multiple chambers

Throughput (lb/hr) \* 8760 hr/yr \* ton/2000 lb = throughput (ton/yr)

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**Company Name:** International Fuel Systems

**Address City IN Zip:** 980 Hurricane Road, Franklin, IN 46131

**CP:** 081-12761

Plt ID: 081-00041

**Reviewer:** Adeel Yousuf / EVP

Date: November 8, 2000

Date: November 8, 2000							
Uncontrolled Potential Emissions (tons/year)							
	Emissions Generating Activity						
Pollutant	Welding	Furnace with Afterburner	Bake off Oven # 1	Unit Heaters	Unit Heaters	Parts Washers	TOTAL
	Operation	Natural Gas Combustion	Incinerator	Natural Gas combustion	Propane Gas Combustion	Natural Gas combustion	
PM	4.37E-02	0.03	0.657	0.121	0.047	0.029	0.93
PM10	4.37E-02	0.03	0.657	0.121	0.047	0.029	0.93
SO2	0.00	0.00	0.11	0.006	0.00001	0.002	0.12
NOx	0.00	0.42	0.088	1.017	1.66	0.243	3.43
VOC	0.00	0.02	0.657	0.079	0.059	0.019	0.83
CO	0.00	0.35	0.876	0.433	0.225	0.103	1.99
total HAPs	1.14E-04	0.00	0	0.204	0	0.00487	0.21
worst case single HAP	Manganese 0.00011	0.00	0	Hexane 0.1974	0	Hexane 0.00465	0.00
Total emissions based on rated capacity at 8,760 hours/year							
Controlled Potential Emissions (tons/year)							
	Emissions Generating Activity						
Pollutant	Welding	Furnace with Afterburner	Bake off Oven # 1	Unit Heaters	Unit Heaters	Parts Washers	TOTAL
	Operation	Natural Gas Combustion	Incinerator	Natural Gas combustion	Propane Gas Combustion	Natural Gas combustion	
PM	4.37E-02	0.03	0.657	0.121	0.047	0.029	0.93
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CO	0.00	0.35	0.876	0.433	0.225	0.103	1.99
total HAPs	1.14E-04	0.00	0	0.204	0	0.00487	0.21
worst case single HAP	Manganese 0.00011	0.00	0	Hexane 0.1974	0	Hexane 0.00465	0.00
Total emissions based on rated capacity at 8,760 hours/year, after control							